Amendments to the Claims

Please amend the claims without prejudice. The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of the Claims

1. (Original) A method for downhole spectroscopy processing comprising:

obtaining raw spectroscopy data using a downhole tool;

processing downhole the raw spectroscopy data using the downhole tool to obtain a downhole processed solution;

transmitting the downhole processed solution to a surface processing system; and

using the surface processing system to determine lithology information from the downhole processed solution

wherein processing the raw spectroscopy data comprises:

pre-processing downhole the raw spectroscopy data to obtain a net capture spectra; and

performing spectral stripping using time information and the net capture spectra to determine elemental yields.

2. (Original) The method of claim 1, wherein processing comprises time-stacking the raw spectroscopy data.

3. (Previously presented) The method of claim 1, further comprising comparing the downhole processed solution with data obtained from another downhole tool.

4. (Previously presented) The method of claim 1, further comprising displaying the lithology information on a user interface.

5. (Previously presented) The method of claim 1, wherein processing the raw spectroscopy data further comprises:

determining dry weight elemental concentrations using the elemental yields;

determining a dry weight for at least one selected from the group consisting of clay, carbonate, quartz-feldspar-mica, pyrite, anhydride, siderite, salt, and coal using the dry weight elemental concentrations; and

computing a matrix property using the dry weight elemental concentrations.

6. (Original) A downhole tool for processing raw spectroscopy data, comprising:

at least one detector for detecting the raw spectroscopy data;

processing means for processing the raw spectroscopy data to produce a downhole processed solution; and

means for transmitting the downhole processed solution to a surface location,

wherein the processing means comprises:

means for pre-processing the raw spectral data to obtain a net capture spectra;

means for performing spectral stripping using time information and the net capture spectra to determine elemental yields.

7. (Original) The downhole tool of claim 6, wherein the processing means comprises means for determining elemental yields.

8. (Previously presented) The downhole tool of claim 6, wherein the processing means comprises means for computing a matrix property.

9. (Previously presented) The downhole tool of claim 6, wherein the processing means further comprises means for determining dry weight elemental concentrations using the elemental yields.

10. (Original) The downhole tool of claim 9, wherein the processing means further comprises:

means for determining a dry weight for at least one selected from the group consisting of clay, carbonate, quartz-feldspar-mica, pyrite, anhydride, siderite, salt, and coal using the dry weight elemental concentrations; and

means for computing a matrix property using the dry weight.

11. (Previously presented) The downhole tool of claims 6, wherein the processing means comprises:

a digital signal processor (516);

a power supply (520) operatively connected to the digital signal processor (516);

a local memory (518) operatively connected to the digital signal processor (516); and

a processing interface (514) operatively connected to the digital signal processor (516).

12. (New) A method for downhole spectroscopy processing comprising:

obtaining raw spectroscopy data using a downhole tool;

processing downhole the raw spectroscopy data using the downhole tool to obtain a downhole processed solution;

transmitting the downhole processed solution to a surface processing system; and

using the surface processing system to determine lithology information from the downhole processed solution;

comparing the downhole processed solution with data obtained from another downhole tool; and

wherein processing the raw spectroscopy data comprises:

pre-processing downhole the raw spectroscopy data to obtain a net capture spectra; and

performing spectral stripping using time information and the net capture spectra to determine elemental yields.

13. (New) A downhole tool for processing raw spectroscopy data, comprising:

at least one detector for detecting the raw spectroscopy data;

processing means for processing the raw spectroscopy data to produce a downhole processed solution; and

means for transmitting the downhole processed solution to a surface location,

wherein the processing means comprises:

means for pre-processing the raw spectral data to obtain a net capture spectra;

means for performing spectral stripping using time information and the net capture spectra to determine elemental yields; and

means for comparing the downhole processed solution with data obtained from another downhole tool.